

# Kansas Wind & Renewable Energy Conference 2009

## Why Kansas?

Guido Reuter  
Director, Procurement  
Siemens Wind Power

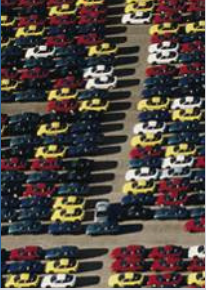








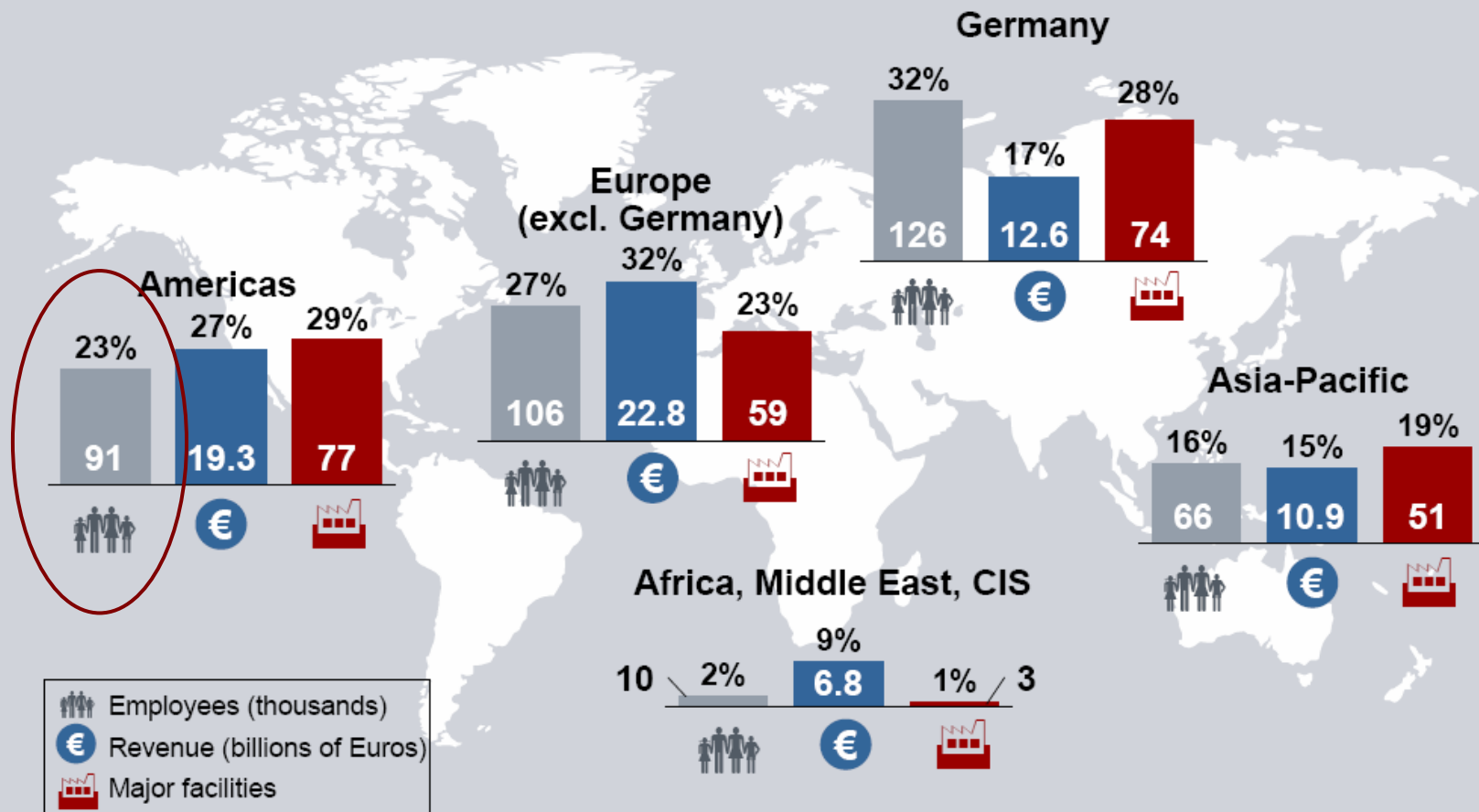
## The Siemens Organization

Annual Turnover (2008)  
77B Euro

Sectors	Divisions
<b>Industry</b> 	<ul style="list-style-type: none"> <li>Industry Automation</li> <li>Drive Technologies</li> <li>Building Technologies</li> <li>Osram</li> <li>Industry Solutions</li> <li>Mobility</li> </ul>
<b>Energy</b> 	<ul style="list-style-type: none"> <li>Oil &amp; Gas</li> <li>Fossil Power Generation</li> <li><u>Renewable Energy</u></li> <li>Service Rotating Equipment</li> <li>Power Transmission</li> <li>Power Distribution</li> </ul>
<b>Healthcare</b> 	<ul style="list-style-type: none"> <li>Imaging &amp; IT</li> <li>Workflow &amp; Solutions</li> <li>Diagnostics</li> </ul>

Siemens  
Wind Power

## Siemens AG – Global Presence



As of September 30, 2007

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## Siemens answers the world's toughest questions



**How can we get a rapid diagnosis right here?**

The Siemens answer: The world's first pocket ultrasound system. For instant insight.

With our highly efficient and innovative imaging systems, we provide what modern medicine needs. And we offer it when and where it's needed most. The ACUSON P10™ ultrasound system provides visual information at the first point of patient contact – reducing delays, when time can be a matter of life and death. [www.siemens.com/answers](http://www.siemens.com/answers)

Answers for life.

**SIEMENS**



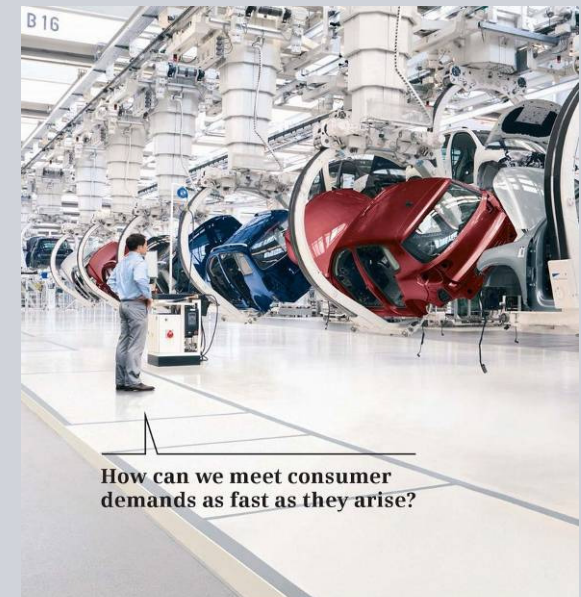
**How can we deliver cleaner energy today?**

The Siemens answer: An efficient energy conversion chain with the world's most efficient combined cycle gas turbine, saving up to 40,000 tons of CO<sub>2</sub>.

Delivering environmentally friendly energy means: generating and transmitting power more efficiently while enabling a reliable distribution. Being the only company worldwide that offers solutions covering the entire energy conversion chain, we develop innovative ways to reduce emissions: for instance our newest gas turbine which will enable the combined cycle plant in Isching, Germany to save up to 40,000 tons of CO<sub>2</sub> per year while powering a city of 3 million people. [www.siemens.com/answers](http://www.siemens.com/answers)

Answers for the environment.

**SIEMENS**



**How can we meet consumer demands as fast as they arise?**

The Siemens answer: Digital engineering for more flexibility and lower costs.

What businesses need today is the ability to react to market needs – quickly and flexibly. We are the only company worldwide providing products and solutions that cover the whole product lifecycle: from virtual product design and development right through to manufacturing. This saves valuable time and makes products more affordable. [www.siemens.com/answers](http://www.siemens.com/answers)

Answers for industry.

**SIEMENS**

## Future energy supply challenges

### Three global megatrends in the energy sector

#### Demographic dynamics



- **Population growth:**  
7.5 bn in 2020 (+1.1 bn)
- **Power consumption:**  
+5.2% p.a. in emerging regions and 1.4% in developed world
- **Megacities** (>10 million inhabitants): 23 megacities in 2015

#### Resource scarcity



- **Geopolitics:**  
70% of world oil and gas supplies only in a few countries
- **Fuel diversity:**  
recent oil price spikes  
accelerate shift to broader fuel mix

#### Environmental focus



- **Global emissions:**  
40% increase in air pollution over past 20 years
- **Climate change:**  
Global warming limited to an average increase of 2 degrees Celsius



## Siemens is THE green company

“Technological revolutions have always been our specialty. That’s why no one is better equipped to lead the green revolution than Siemens. As a green infrastructure giant, the company is a reliable, long-term partner worldwide due to its experience, technological expertise and solid financial position.”



**Peter Löscher**

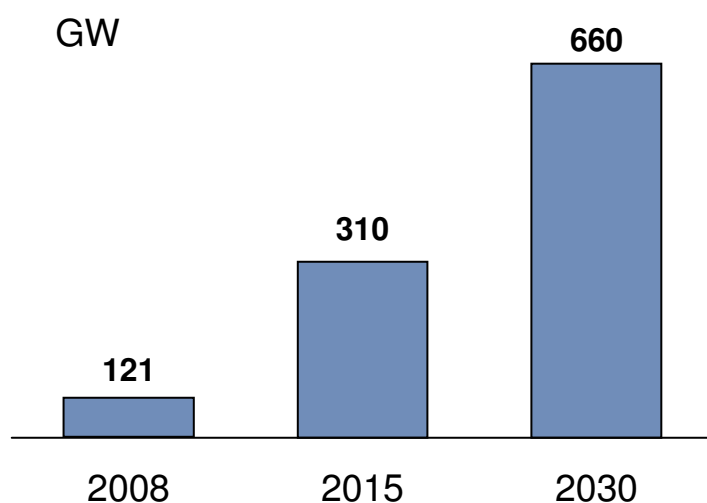
President and CEO, Siemens AG

April 29, 2009

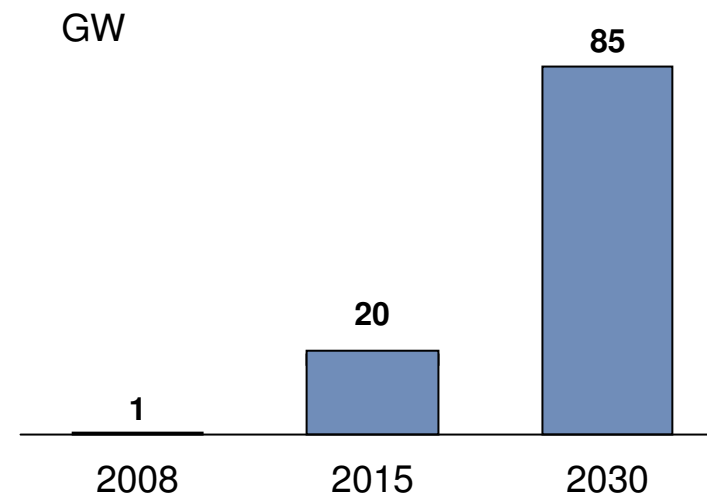
# Wind power: The most important “new” renewable energy source now and in the future

**SIEMENS**

## Installed onshore wind capacity



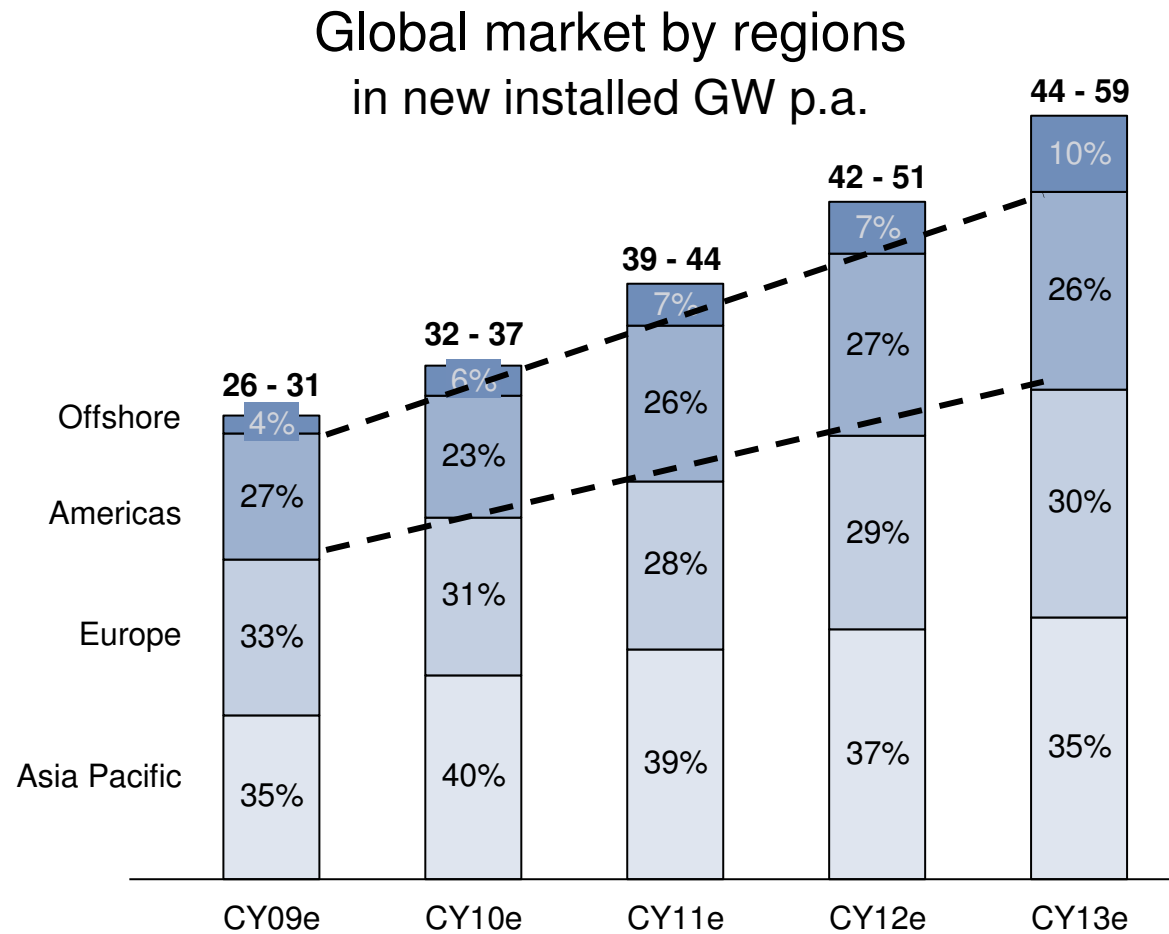
## Installed offshore wind capacity



Source: Siemens Energy scenario “Base Case”



## Americas remains a solid portion of the increasing global demand



Sources: Analyst forecasts, E R WP

## Siemens Wind Power - Facts

**Currently 5.600 employees (800 in 2004)**

**Deliveries: 2.100 MW in 2008 (600 MW in 2004)**

**Capacity: Growing at double digit rate**

**Installed Base: >7.800 turbines with  
>8.800 MW capacity**

**Record Order Entry in FY 2008**

**No 1 in Offshore**

**Target: Top 3 supplier in 2012**





## Offering a product portfolio to meet customer requirements

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**SWT – 2.3- 82VS**



**SWT – 2.3- 93**



**SWT – 2.3- 101**



**SWT – 3.6- 107&120**

**Continuously monitoring market trends and needs for new product development**  
**Onshore, Offshore, Service**

# SWT-2.3-93 Wind Turbine

## Our Bread and Butter Machine

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### Main data:

IEC Class:	IIA
Rotor diameter:	93 m
Blade Length:	45 m / ~50 yds 49m / ~53 yds
Swept area:	6800 m <sup>2</sup>
Hub height:	60-80 m / ~250 ft
Power regulation:	pitch regulated
Annual output at 8 m/s	8,800 MWh
Blade weight:	11 mt
Rotor weight:	60 mt
Nacelle weight:	82 mt / ~180,000 lbs
80 m tower weight:	158.3 mt / ~350,000 lbs

### Experience data:

Prototype installed:	2004-2005
Serial production:	2005
Total number installed	increasing daily





## Transportation is a major consideration

*Rail transportation  
initiative successfully  
implemented*









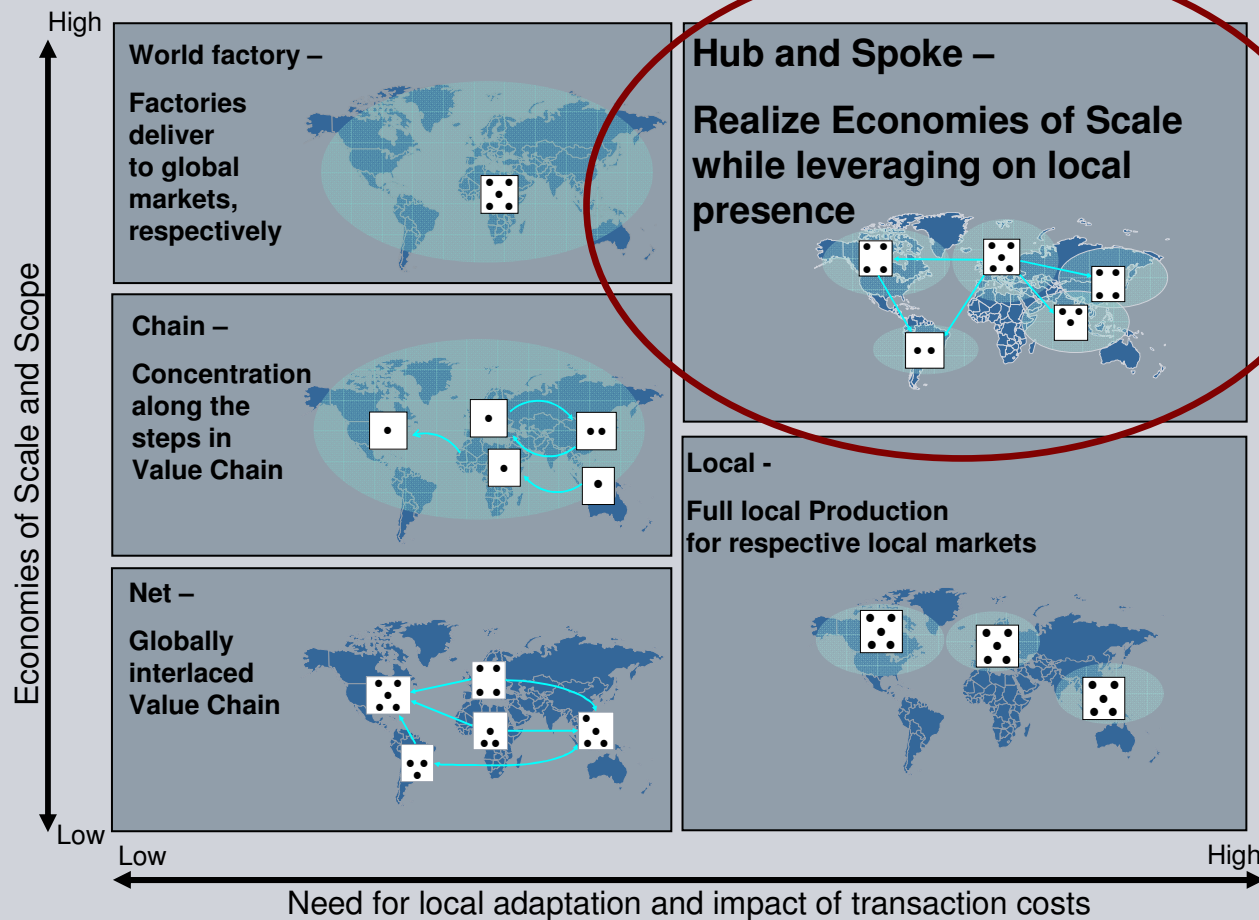
## Nacelle nearing end of transport via 19 axle truck





# Strategic SCM regionalization concept

E R WP 'Hub and Spoke': SCM is consolidated in three hubs, spokes will be established as locally required

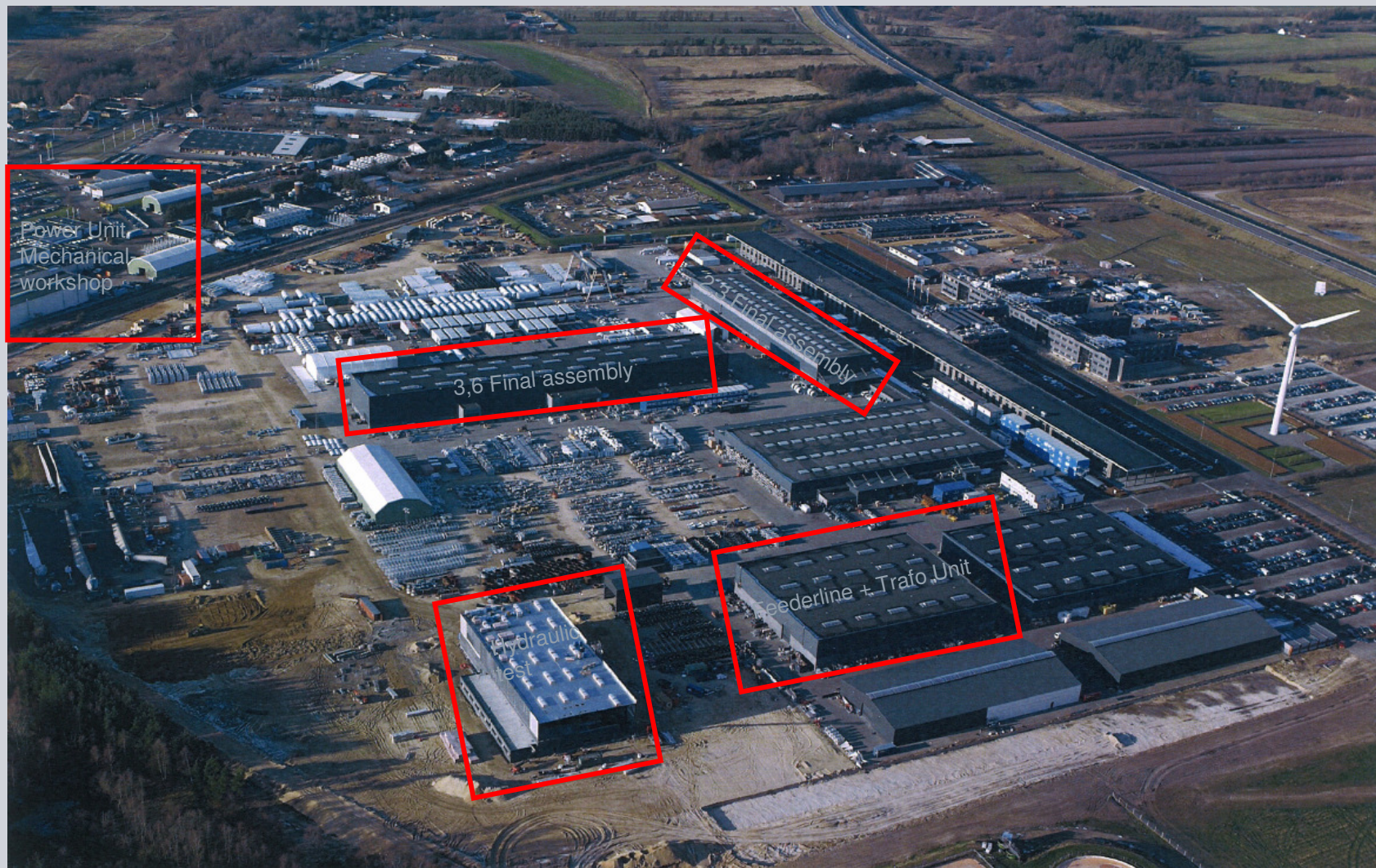


## 'Hub and Spoke': Concept of Choice for E R WP SCM

- SCM focuses on three core markets America, Europe and China (~80% of world market) to realize economies of scale and scope
- For attractive regional markets, an adequate local SCM set-up enables E R WP to penetrate local markets, e.g. with local content requirements
- Procurement retains a global perspective for sourcing components in high quality and low costs

Source: Siemens Supply Chain and Procurement and Manufacturing 2008 / based on E. Abele

## Brande plant





## Fort Madison, Iowa, U.S. Blade Manufacturing Plant – Successful Start-up

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- Facility acquired in August 2006
- Initial 200,000+ square foot manufacturing space on 127 acres
- 1<sup>st</sup> blades shipped to project in August 2007
- 500 MWs production capacity (expanded to 1000 MWs beginning in 2008)
- Building expansion activities in progress
- Current employment ~400/3 shifts





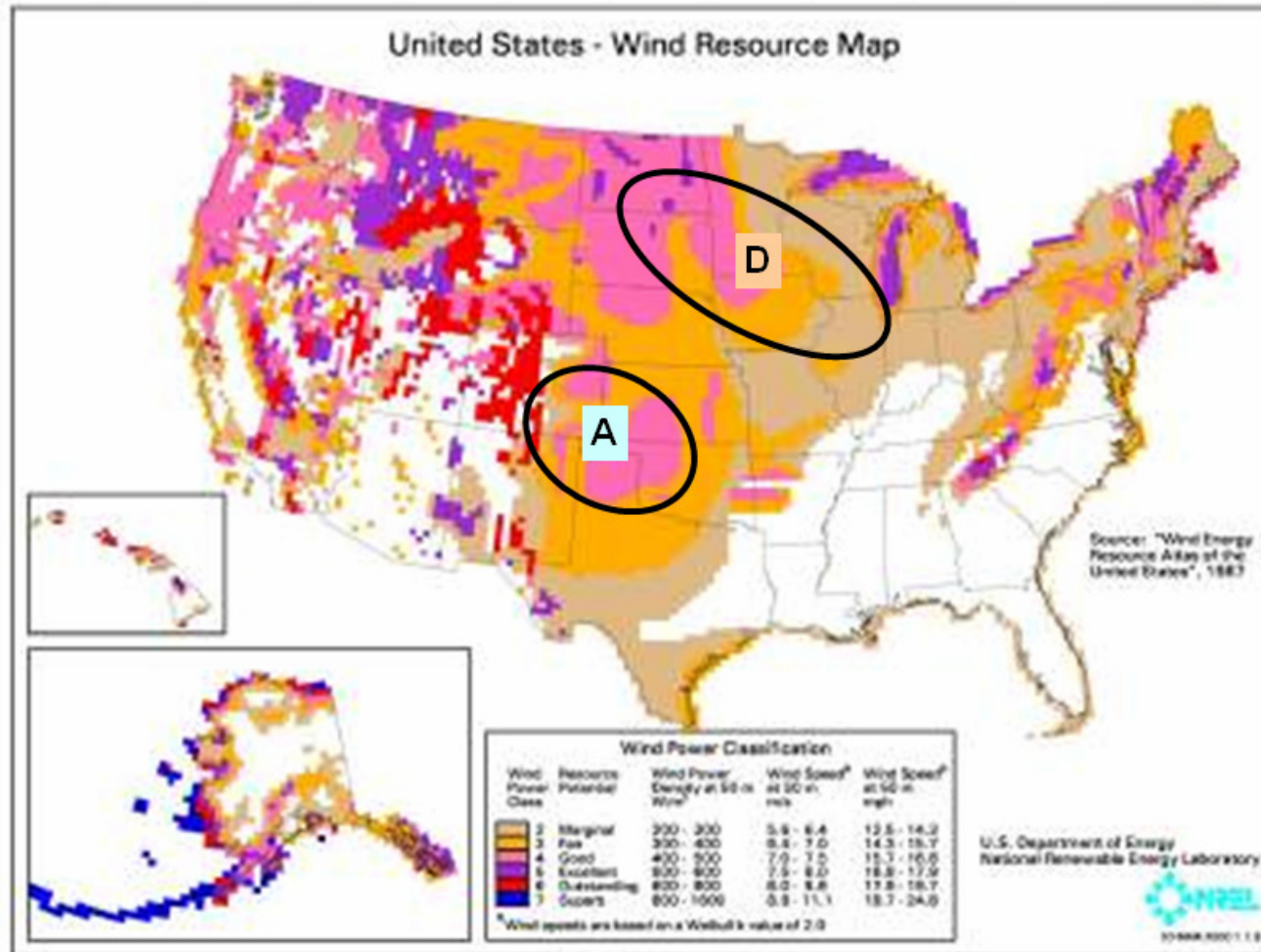
# Nacelle Factory Considerations

- Shipments will concentrate in wind energy zones

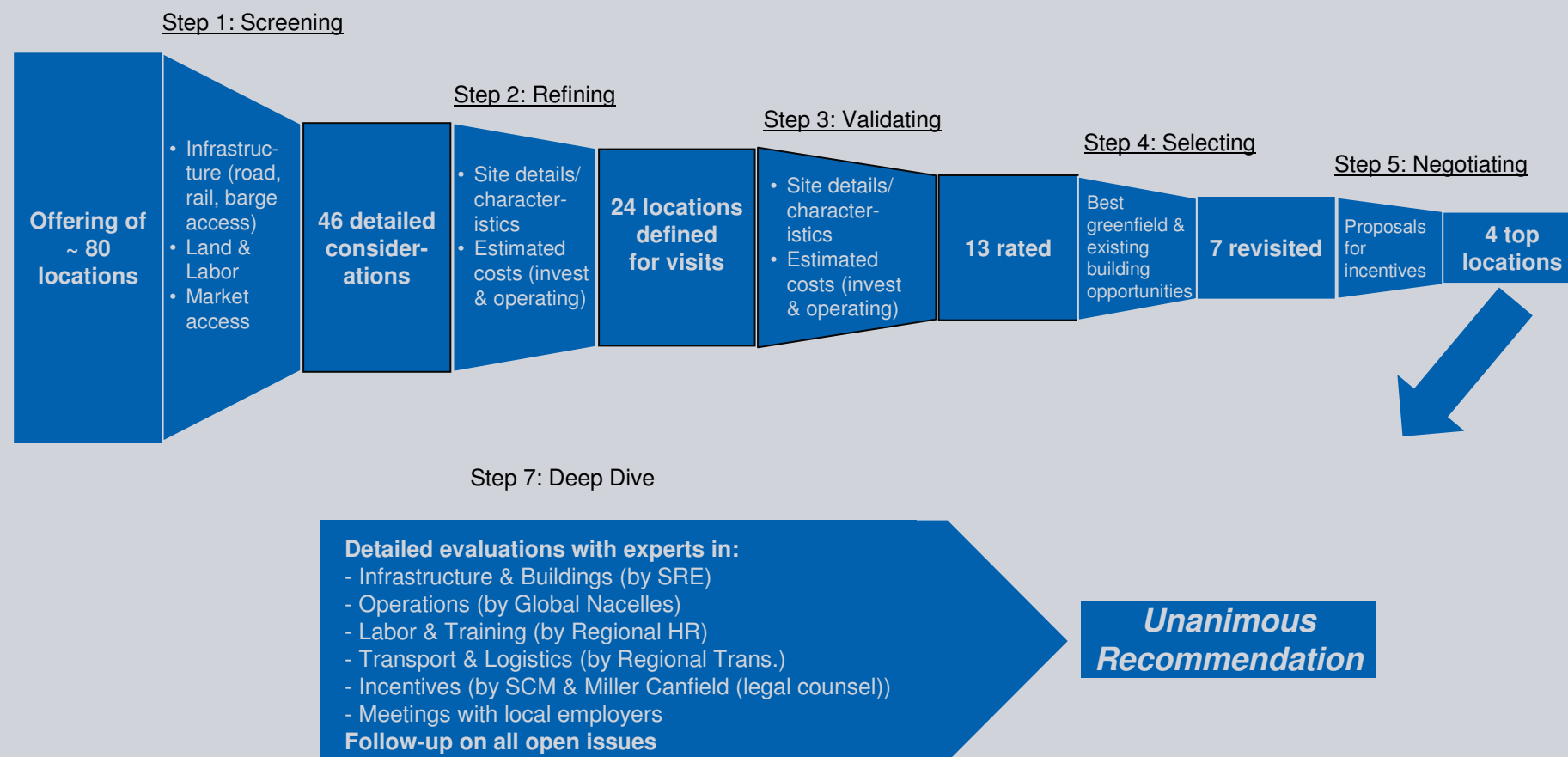
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## Other Basic Criteria

- ✓ Available, quality labor
- ✓ Assured truck transport
  - ✓ Rail capable
  - ✓ Barge accessible
- ✓ Competitive Incentives
  - ✓ "Green" image



## More than 80 locations in US were evaluated



## Priorities, Position, People



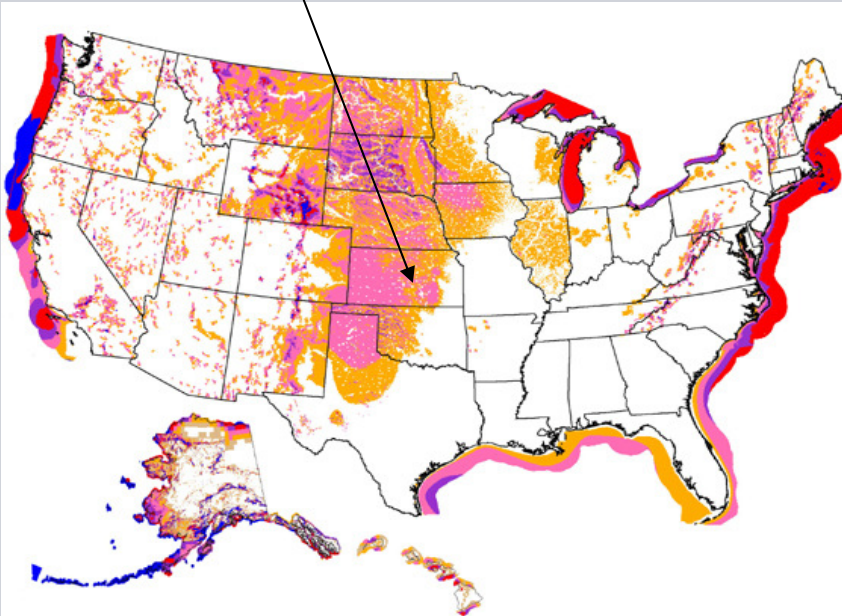
Greenfield

Target Zone



## Hutchinson, Kansas Priorities, Position, People

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- Sizable labor pool of over 100k
- Kansas is 3<sup>rd</sup> highest state for wind energy potential
- Hutchinson is the geographic center of the lower 48 states
- Excellent business and wind support from state and local governments
- Closest site to west Texas wind zone (350 miles to Amarillo)
- Hub for many trucking firms (NAFTA Corridor)



- 108.6 Acres of flat, greenfield in expanding industrial park
- Additional, adjacent land available
- Easy highway access, rail adjacent to site and easily added to site
- Barge access at Port of Catoosa, Oklahoma is 250 miles with rail-to-barge service
- Airport is 45 minute drive to Wichita, KS and served by several major airlines







# Hutchinson Nacelle Plant

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## Rail Loading

## Nacelle facility

## Wind Turbine

Office

## Truck Docks

Oct. 6, 2009

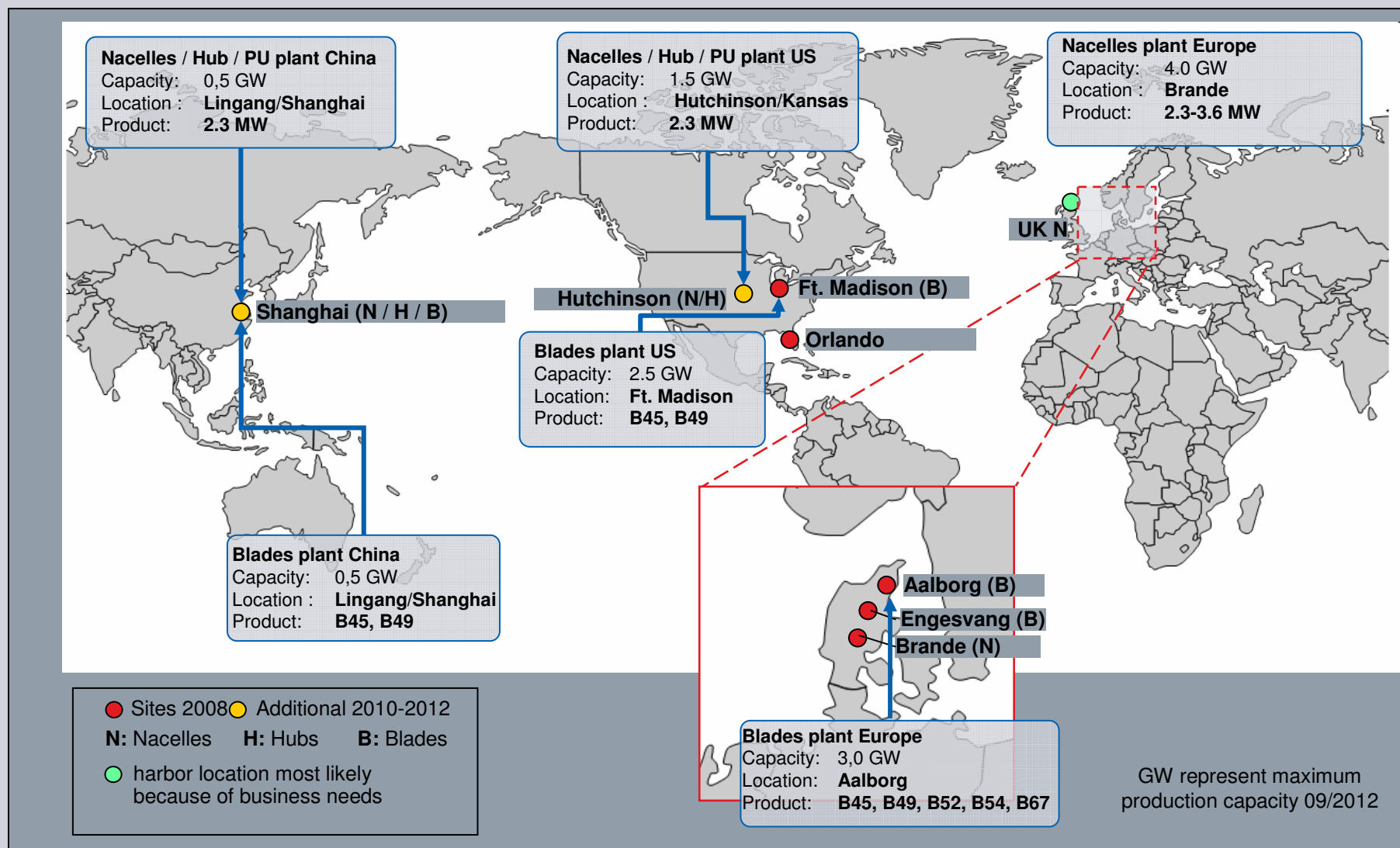
Hazel/Reuter

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# The Result -

## Global Footprint of Siemens Wind Power SCM

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*Hutchinson & Siemens Wind Power.....*

*Opportunity in our hands!*

